

MEMORANDUM

DATE: July 23, 2010

TO: Michael Amling

FROM: Elizabeth Delk

SUBJECT: Focused Survey for Special-Interest Plant Species for the I-5 HOV Lane Extension Project between Avenida Pico and San Juan Creek Road in the Cities of Dana Point, San Clemente, and San Juan Capistrano, Orange County, California; LSA Project No. RMN0901

This memorandum serves to document the results of focused surveys for special-interest plant species conducted by LSA Associates, Inc. (LSA) biologists within the rights-of-way (ROW) along Interstate 5 (I-5) from Avenida Pico in the City of Dana Point and San Juan Creek Road in the City of San Juan Capistrano, in Orange County (County), California (Figure 1, attached). The project limits on I-5 extend from 0.4 mile (mi) south of the Avenida Pico Undercrossing (Post Mile [PM] 3.0) to 0.1 mi south of the San Juan Creek Road Undercrossing (PM 8.7). The proposed project will add one high-occupancy vehicle (HOV) lane in each direction on I-5 throughout the project limits, reestablish existing auxiliary lanes and construct new auxiliary lanes, and improve several existing on- and off-ramps.

Surveys were conducted for the California Department of Transportation (Department) as part of the proposed widening of I-5. The elevation on site ranges from approximately 0 to 1,830 feet (ft) above mean sea level (amsl).

The plant surveys were conducted on April 9 and 16 and June 3, 2010, and focused primarily on 48 special-interest plant species that were identified as potentially present in the biological study area (BSA), which are listed in Appendix A. No special-interest plants were observed within the BSA.

METHODS

Literature Search

As part of the focused survey, a literature review and records search was conducted on August 26, 2009, and June 11, 2010, to assist in determining the existence or potential occurrence of special-interest plant species within the BSA. Database records reviewed were:

- California Natural Diversity Database (CNDDDB) information (Version 3.1.0), which is administered by the California Department of Fish and Game (CDFG). This database covers sensitive plant and animal species as well as sensitive natural communities within California.
- The California Native Plant Society (CNPS) On-Line Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI; 2009).

- A letter received from the United States Fish and Wildlife Service (USFWS) dated September 28, 2009, that provided a list of proposed, threatened, or endangered species potentially occurring within or in the vicinity of the project.

Searches of these databases were conducted for the United States Geological Survey (USGS) quadrangles containing the BSA, the *Dana Point* and *San Clemente, California* USGS 7.5-minute quadrangles. In addition, database searches were extended to include the following surrounding USGS 7.5-minute quadrangles: *San Onofre Bluff*, *Margarita Peak*, *Las Pulgas Canyon*, *San Juan Capistrano*, *Canada Gobernadora*, and *Oceanside, California*. Other sensitive species known by LSA to occur in the general area were also considered.

Fieldwork

The focused surveys within the biological BSA were conducted on April 9 and 16, 2010, by LSA biologists Jim Harrison, Stan Spencer, and Elizabeth Delk. Follow-up surveys were conducted on June 3, 2010, by Jim Harrison and Elizabeth Delk. To adequately search for special-interest plant species, survey methods included pulling off onto the I-5 ROW, as well as exiting the I-5 to access frontage roads leading to necessary access points. At the access points, each biologist investigated the roadside areas on foot or with the aid of binoculars if pedestrian access was not possible.

The flowering season for native plant species varies and is dependent on the frequency, duration, and seasonal timing of rainfall events, moisture availability, and soil and air temperatures. The potential for detection of plant species is variable from month to month and year to year. Therefore, the timing of the surveys was selected to correspond with the optimal time for detecting special-interest plants in the BSA.

The surveys were floristic in nature, where all vascular plant species encountered in the BSA were identified, not just special-interest plants. All plant species observed during the surveys were noted and are listed in Appendix B.

SPECIAL-INTEREST PLANT SPECIES

Legal protection for special-interest species varies widely from comprehensive protection extended to listed threatened/endangered species to no legal status at present. The CDFG, USFWS, local agencies, and special-interest groups such as the CNPS publish watch lists of declining species. These lists often describe the general nature and perceived severity of the decline. In addition, recently published findings and preliminary results of ongoing research provide a basis for consideration of species that are candidates for State and/or federal listing. Finally, species that are clearly not rare or threatened statewide or regionally, but whose local populations are sparse, rapidly dwindling, or otherwise unstable, may be considered to be of local interest.

Inclusion of special-interest species in this analysis is based on the following criteria:

- Direct observation of the species or its sign in the BSA or immediate vicinity during surveys conducted for this study or reported in previous biological studies
- Sighting by other qualified observers

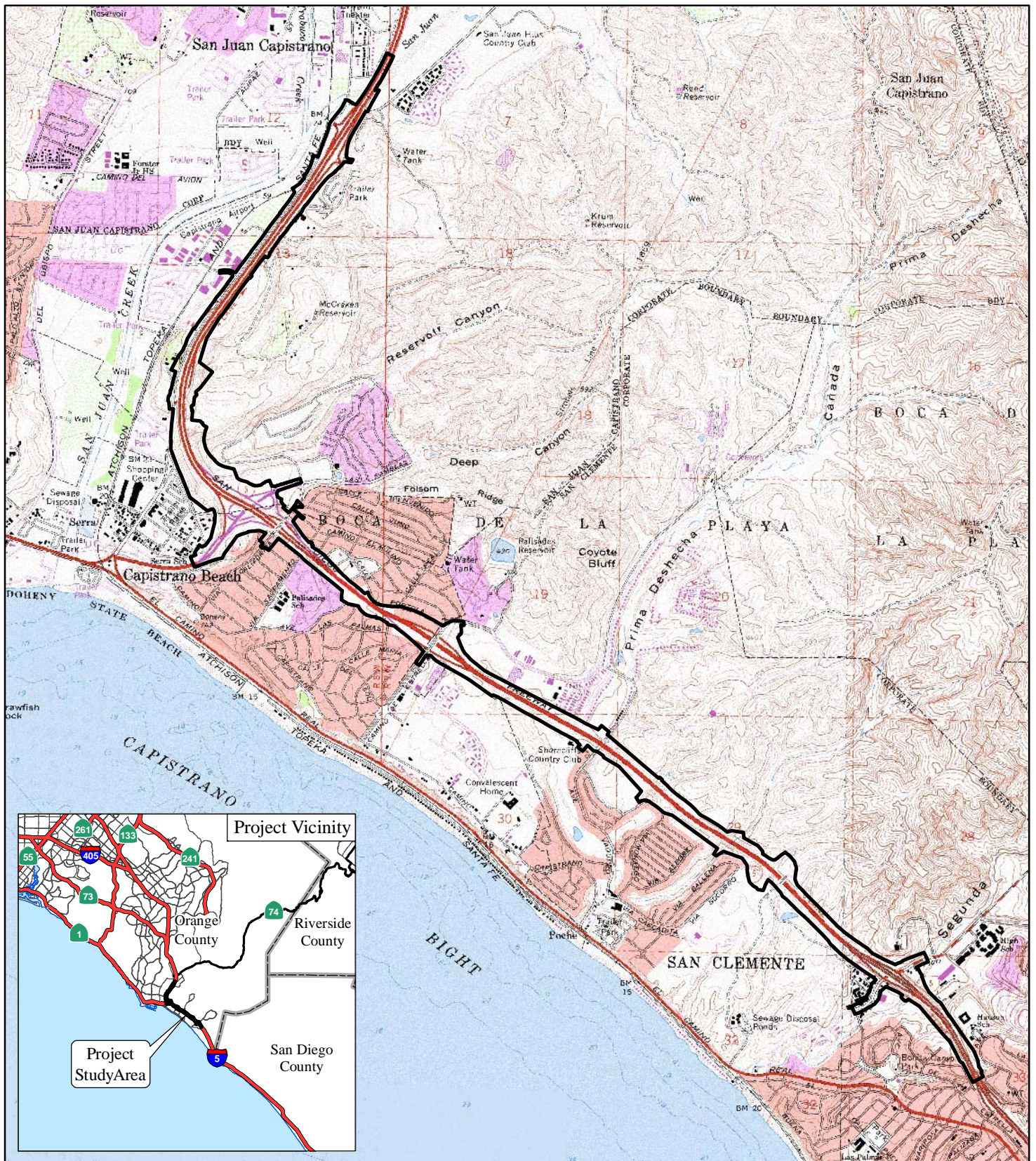
- Record reported by the CNDDDB published by CDFG
- Presence or location of specific species lists provided by private groups (e.g., CNPS)
- The BSA lies within known distribution of a given species and contains appropriate habitat

RESULTS

The literature review, records search, and expert knowledge revealed 48 special-interest plant species with some potential to occur within the BSA. Appendix A lists these same species with a data summary for each and whether or not the plant species was observed or if suitable habitat is present within the project area. No special-interest plants were observed within the BSA.

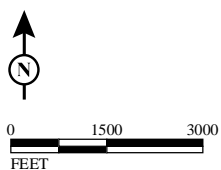
If you have any questions about this memorandum or require additional botanical information, please call me at (949) 553-0666.

Attachments: Figure 1: Project Location
 Appendix A: Listed, Proposed, and Special-Status Plant Species and Critical Habitat
 Potentially Occurring or Known to Occur in the Project Area
 Appendix B: Vascular Plant Species Observed



LEGEND

Project Location and Study Area



SOURCE: USGS 7.5' QUAD - Dana Point (75); San Clemente (75)
 E:\RMN0901\GIS\ProjLoc_StudyArea.mxd (7/23/2010)

FIGURE 1

I-5 HOV Lane Extension Project
 Regional Location and Project Vicinity
 12-ORA-5 PM 3.0/8.7
 EA# 0F9600

APPENDIX A

LISTED, PROPOSED, AND SPECIAL-STATUS PLANT SPECIES AND CRITICAL HABITAT POTENTIALLY OCCURRING OR KNOWN TO OCCUR IN THE PROJECT AREA

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|--------------------------|---|----------------------------------|--|------------------|----------------------------|---|
| Aphanisma | <i>Aphanisma blitoides</i> | CSP CNPS: List 1B | Annual herb. Occurs in coastal bluff scrub, coastal dunes, and coastal scrub in sandy or clay soils up to 915 ft in elevation. | March–June | A | No suitable habitat for this species is present in the BSA. |
| Rainbow manzanita | <i>Arctostaphylos rainbowensis</i> | CSP CNPS: List 1B | Perennial evergreen shrub. Occurs in chaparral from 675 to 2,010 ft in elevation. | December–March | A | No suitable habitat for this species is present in the BSA. |
| Coastal dunes milk-vetch | <i>Astragalus tener</i> var. <i>titi</i> | FE CE CSP CNPS: List 1B | Annual herb. Occurs in coastal bluff scrub, coastal dunes, and coastal prairie, often in vernal mesic areas. From 3 to 150 ft in elevation. | March–May | A | No suitable habitat for this species is present in the BSA. |
| Coulter's saltbush | <i>Atriplex coulteri</i> | CSP CNPS: List 1B | Perennial herb. Occurs in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grasslands, usually on ocean bluffs and ridge tops in alkaline or clay soils. From 10 to 1,510 ft in elevation. | March–October | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| South coast saltscall | <i>Atriplex pacifica</i> | CSP CNPS: List 1B | Annual herb. Occurs in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grasslands in alkaline or clay soils. From 9 to 1,380 ft in elevation. | March–October | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Encinitas baccharis | <i>Baccharis vanessae</i> | FT CE CSP CNPS: List 1B | Perennial deciduous shrub. Occurs in chaparral and cismontane woodland from 180 to 2,160 ft in elevation. | August–November | A | No suitable habitat for this species is present in the BSA. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|----------------------------|--|------------------------------------|---|------------------|----------------------------|---|
| Thread-leaved brodiaea | <i>Brodiaea filifolia</i> | FT CE CSP CNPS: List 1B.1 | Bulbiferous perennial herb. Occurs primarily in vernal pools, but also found in chaparral, cismontane woodlands, coastal scrub, playas, and valley and foothill grasslands, usually in clay soils. From 115 to 4,003 ft in elevation. | March–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Orcutt's brodiaea | <i>Brodiaea orcuttii</i> | CSP CNPS: List 1B | Perennial bulbiferous herb. Occurs in closed-cone coniferous forest; chaparral; cismontane woodland; meadows and seeps; valley and foothill grasslands; and mesic, clay, and sometimes serpentine vernal pools. From 90 to 5,076 ft in elevation. | May–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Santa Rosa Basalt brodiaea | <i>Brodiaea santarosae</i> | CSP CNPS: List 3 | Perennial bulbiferous herb. Occurs in basaltic valley and foothill grasslands from 1,740 to 3,135 ft in elevation. | May–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Intermediate mariposa lily | <i>Calochortus weedii</i> var. <i>intermedius</i> | CSP CNPS: List 1B | Perennial bulbiferous herb. Occurs in chaparral, coastal scrub, and valley and foothill grasslands. Often in dry, rocky soils from 395 to 2,805 ft in elevation. | May–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Southern tarplant | <i>Centromadia parryi</i> ssp. <i>australis</i> | CSP CNPS: List 1B | Annual herb. Occurs in vernal pools, margins of marshes and swamps, and vernal mesic valley and foothill grasslands, sometimes with saltgrass on alkaline soils. Up to 1,400 ft in elevation. | May– November | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|-------------------------|--|----------------------|---|------------------|----------------------------|---|
| Smooth tarplant | <i>Centromadia pungens</i> ssp. <i>laevis</i> | CSP CNPS: List 1B | Annual herb. Occurs in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grasslands, usually in alkaline soils. From 0 to 1,920 ft in elevation. | April–September | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Orcutt's pincushion | <i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i> | CSP CNPS: List 1B | Annual herb. Occurs in coastal bluff scrub and coastal dunes from 9 to 300 ft in elevation. | January–August | A | No suitable habitat for this species is present in the BSA. |
| Long-spined spineflower | <i>Chorizanthe polygonoides</i> var. <i>longispina</i> | CSP CNPS: List 1B | Annual herb. Occurs in chaparral, coastal scrub, meadows and seeps, valley and foothill grasslands, and vernal pools, often with clay. From 90 to 4,590 ft in elevation. | April–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Summer holly | <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> | CSP CNPS: List 1B | Perennial evergreen shrub. Occurs in chaparral and cismontane woodland from 90 to 1,650 ft in elevation. | April–June | A | No suitable habitat for this species is present in the BSA. |
| Sea dahlia | <i>Coreopsis maritima</i> | CSP CNPS: List 2 | Perennial herb. Occurs in coastal bluff scrub and coastal scrub from 15 to 450 ft in elevation. | March–May | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Blochman's dudleya | <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> | CSP CNPS: List 1B | Perennial herb. Occurs in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grasslands, often in rocky, clayey, or serpentine soils. From 15 to 1,350 ft in elevation. | April–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|-------------------------|--|----------------------------------|---|------------------|----------------------------|---|
| Many-stemmed dudleya | <i>Dudleya multicaulis</i> | CSP CNPS: List 1B | Perennial herb. Occurs in chaparral, coastal scrub, and valley and foothill grasslands, usually in heavy, often clayey soils. From 45 to 2,370 ft in elevation. | April–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Laguna Beach dudleya | <i>Dudleya stolonifera</i> | FT CT CSP CNPS: List 1B | Perennial stoloniferous herb. Occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands, often in thin soil on north-facing sandstone cliffs. From 30 to 780 ft in elevation. | May–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Sticky dudleya | <i>Dudleya viscida</i> | CSP CNPS: List 1B | Perennial herb. Occurs in chaparral, coastal bluff scrub, cismontane woodland, and rocky coastal scrub from 30 to 1,650 ft in elevation. | May–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| San Diego button-celery | <i>Eryngium aristulatum</i> var. <i>parishii</i> | FE CE CSP CNPS: List 1B | Annual/perennial herb. Occurs in coastal scrub, valley and foothill grasslands, and mesic vernal pools from 60 to 1,860 ft in elevation. | April–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Pendleton button-celery | <i>Eryngium pendletonensis</i> | CSP CNPS: List 1B | Perennial herb. Occurs in coastal bluff scrub; valley and foothill grasslands; and clay, vernal mesic vernal pools from 45 to 330 ft in elevation. | April–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|------------------------|-----------------------------|----------------------|---|------------------|----------------------------|---|
| Sand-loving wallflower | <i>Erysimum ammophilum</i> | CSP CNPS: List 1B | Perennial herb. Occurs in maritime chaparral, coastal dunes, and sandy openings in coastal scrub from 0 to 200 ft in elevation. | February–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Cliff spurge | <i>Euphorbia misera</i> | CSP CNPS: List 2 | Perennial shrub. Occurs in coastal bluff scrub, coastal scrub, and Mojavean desert scrub in rocky soils or along cliffs. From 30 to 1,500 ft in elevation. | December–August | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Palmer's grapplinghook | <i>Harpagonella palmeri</i> | CSP CNPS: List 4 | Annual herb. Occurs in chaparral, coastal scrub, and valley and foothill grasslands, often in clay soil. From 60 to 2,865 ft in elevation. | March–May | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Vernal barley | <i>Hordeum intercedens</i> | CSP CNPS: List 3 | Annual herb. Occurs in coastal dunes, coastal scrub, vernal pools, and valley and foothill grasslands from 15 to 3,000 ft in elevation. | March–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Ramona horkelia | <i>Horkelia truncata</i> | CSP CNPS: List 1B | Perennial herb. Occurs in chaparral and cismontane woodland, in clay and gabbroic soils. From 1,200 to 3,900 ft in elevation. | May–June | A | No suitable habitat for this species is present in the BSA. |
| California satintail | <i>Imperata brevifolia</i> | CSP CNPS: List 2 | Perennial rhizomatous herb. Occurs in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps, and riparian scrub in mesic soils. From 0 to 1,500 ft in elevation. | September–May | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|------------------------------------|---|----------------------------|--|------------------|----------------------------|---|
| Coulter's goldfields | <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> | CSP CNPS: List 1B | Annual herb. Occurs in marshes and swamps, playas, and vernal pools from 3 to 3,660 ft in elevation. | February– June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Nuttall's lotus | <i>Lotus nuttallianus</i> | CSP CNPS: List 1B | Annual herb. Occurs in coastal dunes and coastal scrub in sandy soils. From 0 to 30 ft in elevation. | March–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Santa Catalina Island desert-thorn | <i>Lycium brevipes</i> var. <i>hassei</i> | CSP CNPS: List 1B | Perennial deciduous herb. Occurs in coastal scrub and coastal bluff scrub from 30 to 900 ft in elevation. | June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Little mouseltail | <i>Myosurus minimus</i> ssp. <i>apus</i> | CSP CNPS: List 3 | Annual herb. Occurs in valley and foothill grasslands and vernal pools from 60 to 1,920 ft in elevation. | March–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Moran's navarretia | <i>Navarretia fossalis</i> | FT CSP CNPS: List 1B | Annual herb. Occurs in chenopod scrub; assorted shallow freshwater marshes; and swamps, playas, and vernal pools from 90 to 3,900 ft in elevation. | April–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|----------------------------------|---|----------------------------|--|-------------------|----------------------------|---|
| Prostrate vernal pool navarretia | <i>Navarretia prostrata</i> | CSP CNPS: List 1B | Annual herb. Occurs in coastal scrub, meadows and seeps, alkaline valley and foothill grasslands, and mesic vernal pools from 45 to 2,100 ft in elevation. | April–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Coast woolly-heads | <i>Nemacaulis denedata</i> var. <i>denudata</i> | CSP CNPS: List 1B | Annual herb. Occurs in coastal dunes from 0 to 300 ft in elevation. | April–September | A | No suitable habitat for this species is present in the BSA. |
| Slender cottonheads | <i>Nemacaulis denudata</i> var. <i>gracilis</i> | CSP CNPS: List 2 | Annual herb. Occurs in coastal dunes, desert dunes, and Sonoran desert scrub from 150 to 1,200 ft in elevation. | (March) April–May | A | No suitable habitat for this species is present in the BSA. |
| Peninsular nolina | <i>Nolina cismontana</i> | CSP CNPS: List 1B | Perennial evergreen shrub. Occurs in chaparral and coastal scrub on sandstone or gabbro soils. From 420 to 3,825 ft in elevation. | May–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Allen’s pentachaeta | <i>Pentachaeta aurea</i> ssp. <i>allenii</i> | CSP CNPS: List 1B | Annual herb. Occurs in coastal scrub openings and valley and foothill grasslands from 225 to 1,560 ft in elevation. | March–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Brand’s star phacelia | <i>Phacelia stellaris</i> | FC CSP CNPS: List 1B | Annual herb. Occurs in coastal dunes and coastal scrub from 3 to 1,200 ft in elevation. | March–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/ Absent | Rationale |
|--------------------------|---------------------------------------|----------------------|--|---|----------------------------|---|
| White rabbit-tobacco | <i>Pseudognaphalium leucocephalum</i> | CSP CNPS: List 2 | Perennial herb. Occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland on sandy and gravelly soils below 7,000 ft in elevation. | August–November (July–December) ¹ | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Nuttall's scrub oak | <i>Quercus dumosa</i> | CSP CNPS: List 1B | Perennial evergreen shrub. Occurs in closed-cone coniferous forest, chaparral, and coastal scrub in sandy, clay loam soils. From 45 to 1,200 ft in elevation. | February–April | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| San Miguel savory | <i>Satureja chandleri</i> | CSP CNPS: List 1B | Perennial shrub. Occurs in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grasslands, usually in rocky, gabbroic, or metavolcanic soils. From 360 to 3,225 ft in elevation. | March–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Chaparral ragwort | <i>Senecio aphanactis</i> | CSP CNPS: List 2 | Annual herb. Occurs in chaparral, cismontane woodland, and coastal scrub on drying alkaline flats. From 45 to 2,400 ft in elevation. | January–April | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Salt spring checkerbloom | <i>Sidalcea neomexicana</i> | CSP CNPS: List 2 | Perennial herb. Occurs in coastal scrub, chaparral, lower montane coniferous forest, brackish marshes, Mojavean desert scrub, and playas on alkaline, mesic soils. From 45 to 4,590 ft in elevation. | March–June | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Estuary seablite | <i>Suaeda esteroa</i> | CSP CNPS: List 1B | Perennial herb. Occurs in coastal salt marshes and swamps up to 15 ft in elevation. | May–October (January) ¹ | A | No suitable habitat for this species is present in the BSA. |

Listed, Proposed, and Special-Status Plant Species and Critical Habitat Potentially Occurring or Known to Occur in and in the Vicinity of the BSA

| Common Name | Scientific Name | Status | General Habitat Description | Flowering Period | Habitat Present/Absent | Rationale |
|-----------------------|----------------------------|----------------------------------|--|------------------|------------------------|---|
| Parry's tetracoccus | <i>Tetracoccus dioicus</i> | CSP CNPS: List 1B | Perennial deciduous herb. Occurs on dry, stony slopes in chaparral and coastal sage scrub. From 500 to 2,200 ft in elevation. | April–May | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| Big-leaved crownbeard | <i>Verbesina dissita</i> | FT CT CSP CNPS: List 1B | Perennial herb. Occurs in southern maritime chaparral and coastal scrub from 135 to 615 ft in elevation along the immediate coast. | April–July | HP | Suitable habitat for this species is present in the BSA. Not observed during botanical surveys conducted during the appropriate blooming period for this plant in 2010. |
| La Purisima viguiera | <i>Viguiera purisimae</i> | CSP CNPS: List 2 | Shrub. Occurs in coastal bluff scrub and chaparral from 1,095 to 1,275 ft in elevation. | April–September | A | No suitable habitat for this species is present in the BSA. |

¹ Months in parentheses are uncommon.

Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC); California Endangered (CE); California Threatened (CT); California Fully Protected Species (CFP); California Special Plant (CSP), California Native Plant Society (CNPS); etc.

Habitat Present/Absent:

A – No habitat is present and no further work is needed, or habitat is absent or species was absent in the BSA at the time of the focused survey.

HP – Habitat is or may be present.

O – The species was observed in the BSA at the time of the survey.

CH – The project footprint is located in a designated critical habitat unit, but appropriate habitat is not necessarily present.

BSA = Biological Study Area

ft = feet

CNPS designations:

List 1A: Plants presumed extinct in California

List 1B: Plants rare and endangered in California and throughout their range

List 2: Plants rare, threatened, or endangered in California but more common elsewhere in their range

List 3: Plants needing more information (a review list)

List 4: Plants of limited distribution (a watch list)

APPENDIX B

VASCULAR PLANT SPECIES OBSERVED

VASCULAR PLANT SPECIES OBSERVED

The following vascular plant species were observed in the study area by LSA biologists Jim Harrison, Stan Spencer, and Elizabeth Delk during site surveys conducted on April 9 and 16 and June 3, 2010.

* Introduced, nonnative species

ANGIOSPERMAE: DICOTYLEDONAE

Aizoaceae

- * *Carpobrotus chilensis*
- * *Carpobrotus edulis*
- * *Mesembryanthemum crystallinum*
- * *Mesembryanthemum nodiflorum*

Amaranthaceae

Amaranthus blitoides

Anacardiaceae

- Malosma laurina*
- Rhus integrifolia*
- Rhus trilobata*
- * *Schinus molle*
- * *Schinus terebinthifolius*

Apiaceae

- * *Conium maculatum*
- Daucus pusillus*
- * *Foeniculum vulgare*

Araliaceae

- * *Hedera helix*

Asclepiadaceae

Asclepias fascicularis

Asteraceae

- Ambrosia psilostachya*
- Artemisia californica*
- Baccharis pilularis*
- Baccharis salicifolia*
- * *Carduus pycnocephalus*
- * *Centaurea melitensis*
- * *Chamomilla suaveolens*
- * *Chrysanthemum coronarium*

DICOT FLOWERING PLANTS

Carpet-Weed Family

- Sea-fig
- Hottentot-fig
- Crystal ice plant
- Small-flowered ice plant

Amaranth Family

- Prostrate pigweed

Sumac Family

- Laurel sumac
- Lemonade berry
- Squaw bush
- Peruvian pepper tree
- Brazilian pepper tree

Carrot Family

- Poison hemlock
- Rattlesnake weed
- Sweet fennel

Ginseng Family

- English ivy

Milkweed Family

- Narrow-leaf milkweed

Sunflower Family

- Western ragweed
- California sagebrush
- Coyote bush
- Mulefat
- Italian thistle
- Tocalote
- Pineapple weed
- Garland chrysanthemum

| | |
|--|--------------------------|
| * <i>Cirsium vulgare</i> | Bull thistle |
| <i>Conyza coulteri</i> | Coulter's horseweed |
| <i>Conyza canadensis</i> | Common horseweed |
| <i>Corethrogyne filaginifolia</i> | Common sand aster |
| * <i>Cotula australis</i> | Australian brass-buttons |
| * <i>Cynara cardunculus</i> | Artichoke thistle |
| <i>Deinandra fasciculata</i> | Fascicled tarweed |
| * <i>Dimorphotheca sinuata</i> | African daisy |
| <i>Encelia californica</i> | California encelia |
| <i>Encelia farinosa</i> | Brittlebush |
| * <i>Filago gallica</i> | Narrow-leaved filago |
| * <i>Gazania linearis</i> | Gazania |
| <i>Grindelia camporum</i> | White-stem gumplant |
| <i>Hedypnois cretica</i> | Crete hedypnois |
| <i>Helianthus annuus</i> | Western sunflower |
| <i>Heterotheca grandiflora</i> | Telegraph weed |
| * <i>Hypochaeris glabra</i> | Smooth cat's-ear |
| <i>Isocoma menziesii</i> | Coastal goldenbush |
| * <i>Lactuca serriola</i> | Prickly lettuce |
| * <i>Logfia gallica</i> | Narrowleaf cottonrose |
| <i>Malacothrix saxatilis</i> | Cliff malacothrix |
| * <i>Matricaria discoidea</i> | Disc mayweed |
| <i>Osteospermum</i> sp. | Daisybush |
| * <i>Picris echioides</i> | Bristly ox-tongue |
| <i>Pluchea odorata</i> | Marsh fleabane |
| <i>Pseudognaphalium bicolor</i> | Bicolored cudweed |
| <i>Pseudognaphalium californicum</i> | California everlasting |
| * <i>Pseudognaphalium luteo-album</i> | weedy cudweed |
| <i>Pseudognaphalium stramineum</i> | Cotton-batting plant |
| * <i>Pulicaria paludosa</i> | Spanish sunflower |
| * <i>Senecio vulgaris</i> | Common groundsel |
| * <i>Silybum marianum</i> | Milk thistle |
| * <i>Sonchus arvensis</i> | Perennial sow-thistle |
| * <i>Sonchus asper</i> ssp. <i>asper</i> | Prickly sow-thistle |
| * <i>Sonchus oleraceus</i> | Common sow-thistle |
| <i>Stephanomeria virgata</i> ssp. <i>virgata</i> | Tall wreath-plant |
| <i>Xanthium strumarium</i> | Common cocklebur |

Boraginaceae

Amsinckia menziesii var. *intermedia*

Brassicaceae

- * *Brassica nigra*
- * *Brassica rapa*
- * *Lepidium didymum*
- Lepidium nitidum* var. *nitidum*
- * *Raphanus sativus*

Borage Family

Common fiddleneck

Mustard Family

Black mustard
Field mustard
Lesser wart-cress
Shining peppergrass
Wild radish

- * *Rorippa nasturtium-aquaticum*
- * *Sisymbrium altissimum*
- * *Sisymbrium irio*

Cactaceae

- Cylindropuntia prolifera*
- Opuntia littoralis*

Capparaceae

- Isomeris arborea*

Caprifoliaceae

- Sambucus mexicana*

Caryophyllaceae

- * *Silene gallica*
- Spergularia* sp.
- * *Spergularia bocconeii*
- * *Stellaria media*

Chenopodiaceae

- Atriplex canescens* ssp. *canescens*
- Atriplex lentiformis*
- * *Atriplex semibaccata*
- * *Chenopodium album*
- * *Chenopodium murale*
- Salicornia virginica*
- * *Salsola tragus*

Convolvulaceae

- Calystegia macrostegia*
- * *Convolvulus arvensis*
- * *Dichondra micrantha*

Crassulaceae

- * *Crassula argentea*
- Crassula connata*
- Dudleya lanceolata*
- Dudleya pulverulenta* ssp. *pulverulenta*

Cucurbitaceae

- Marah macrocarpus*

Euphorbiaceae

- Chamaesyce maculata*
- Croton setigerus*
- * *Ricinus communis*

- White water-cress
- Tumble mustard
- London rocket

Cactus Family

- Coastal cholla
- Coastal prickly pear

Caper Family

- Bladderpod

Honeysuckle Family

- Mexican elderberry

Pink Family

- Common catchfly
- Sand spurry
- Boccone's sandpurrey
- Common chickweed

Goosefoot Family

- Fourwing saltbush
- Brewer's saltbush
- Australian saltbush
- Lamb's quarters
- Nettle-leaved goosefoot
- Common woody pickleweed
- Russian-thistle

Morning-Glory Family

- Morning-glory
- Field bindweed
- Asian ponysfoot

Stonecrop Family

- Jade plant
- Sand pygmy-stonecrop
- Lance-leaved dudleya
- Chalk dudleya

Gourd Family

- Wild cucumber

Spurge Family

- Spotted spurge
- Doveweed
- Castor bean

Fabaceae

- * *Acacia* sp.
- Lotus scoparius* var. *scoparius*
- Lupinus succulentus*
- * *Medicago* sp.
- * *Medicago polymorpha*
- * *Melilotus alba*
- * *Melilotus indica*
- * *Vicia sativa* ssp. *sativa*

Frankeniaceae

Frankenia salina

Geraniaceae

- * *Erodium botrys*
- * *Erodium cicutarium*
- * *Erodium moschatum*

Hydrophyllaceae

Phacelia distans

Lamiaceae

- * *Marrubium vulgare*
- Salvia apiana*
- Salvia leucophylla*
- Stachys ajugoides*

Malvaceae

- Malacothamnus fasciculatus*
- * *Malva parviflora*
- Malvella leprosa*

Myoporaceae

- * *Myoporum laetum*

Myrtaceae

- * *Callistemon* sp.
- * *Eucalyptus* sp.

Nyctaginaceae

Mirabilis laevis

Oxalidaceae

- * *Oxalis pes-caprae*

Papaveraceae

Legume Family

Acacia
Coastal deerweed
Arroyo lupine
Medicago
Bur-clover
White sweetclover
Yellow sweetclover
Common vetch

Frankenia Family

Alkali heath

Geranium Family

Long-beaked filaree
Red-stemmed filaree
White-stemmed filaree

Waterleaf Family

Common phacelia

Mint Family

Horehound
White sage
Purple sage
Bugle hedge-nettle

Mallow Family

Chaparral bush mallow
Cheeseweed
Alkali-mallow

Myoporum Family

Myoporum

Myrtle Family

Bottlebrush
Gum Tree

Four O'Clock Family

Wishbone bush

Oxalis Family

Bermuda-buttercup

Poppy Family

Eschscholzia californica

California poppy

Plantaginaceae

* *Plantago coronopus*

Plantain Family

Cut-leaf plantain

Plumbaginaceae

Limonium sp.

Leadwort Family

Sea-lavender

Polygonaceae

Eriogonum fasciculatum

Eriogonum giganteum

* *Polygonum aviculare*

* *Rumex crispus*

Buckwheat Family

California buckwheat

St. Catherine's Lace

Common knotweed

Curly dock

Portulacaceae

Claytonia sp.

Claytonia parviflora

Purslane Family

Springbeauty

Miner's lettuce

Primulaceae

* *Anagallis arvensis*

Primrose Family

Scarlet pimpernel

Rosaceae

Heteromeles arbutifolia

Rosa californica

Rose Family

Toyon

California rose

Rubiaceae

Galium aparine

Madder Family

Common bedstraw

Salicaceae

Salix sp.

Salix lasiolepis

Willow Family

Willow

Arroyo willow

Scrophulariaceae

Antirrhinum nuttallianum

Mimulus aurantiacus

Figwort Family

Nuttall's snapdragon

Bush monkey flower

Solanaceae

Datura wrightii

* *Lycopersicon* sp.

* *Nicotiana glauca*

Solanum douglasii

Nightshade Family

Jimsonweed

Tomato

Tree tobacco

Douglas' nightshade

Tamaricaceae

* *Tamarix* sp.

Tamarisk Family

Tamarisk

Urticaceae

* *Urtica urens*

Nettle Family

Dwarf nettle

Verbenaceae

- * *Lantana camara*
- Verbena lasiostachys*

Zygophyllaceae

- * *Tribulus terrestris*

Vervain Family

- Lantana
- Western verbena

Caltrop Family

- Puncture vine

ANGIOSPERMAE: MONOCOTYLEDONAE

Arecaceae

- * *Washingtonia robusta*

Cyperaceae

- Bolboschoenus maritimus*
- Cyperus* sp.
- Scirpus californicus*
- Scirpus maritimus*

Iridaceae

- Sisyrinchium bellum*

Liliaceae

- Bloomeria crocea*

Poaceae

- * *Arundo donax*
- * *Avena barbata*
- * *Avena fatua*
- * *Bromus diandrus*
- * *Bromus hordeaceus*
- * *Bromus madritensis* ssp. *rubens*
- * *Cortaderia selloana*
- * *Cynodon dactylon*
- * *Digitaria sanguinalis*
- Distichlis spicata*
- * *Ehrharta erecta*
- * *Hordeum murinum* ssp. *leporinum*
- * *Lamarckia aurea*
- Leptochloa uninervia*
- * *Lolium multiflorum*
- Nassella lepida*
- * *Paspalum dilatatum*
- * *Pennisetum setaceum*
- * *Phalaris minor*
- * *Poa annua*

MONOCOT FLOWERING PLANTS

Palm Family

- Mexican fan palm

Sedge Family

- Alkali bulrush
- Umbrella-sedge
- California bulrush
- Alkali bulrush

Iris Family

- Blue-eyed grass

Lily Family

- Common golden stars

Grass Family

- Giant reed
- Slender wild oat
- Common wild oat
- Ripgut grass
- Soft chess
- Foxtail chess
- Pampas grass
- Bermuda grass
- Crab grass
- Saltgrass
- Panic veldtgrass
- Bare barley
- Goldentop
- Mexican sprangletop
- Italian ryegrass
- Foothill needlegrass
- Dallis grass
- African fountain grass
- Littleseed canary grass
- Annual bluegrass

- * *Polypogon monspeliensis*
- * *Vulpia myuros*
Vulpia octoflora

Rabbitfoot grass
Foxtail fescue
Hairy six-weeks fescue

Typhaceae

Typha sp.
Typha latifolia

Cat-Tail Family

Cat-tail
Broad-leaved cat-tail

Taxonomy and scientific nomenclature conform to Hickman (1993). Common names for each taxa generally conform to Roberts (1998), although Abrams (1923, 1944, 1951) and Abrams and Ferris (1960) are used, particularly when species specific common names are not identified in Roberts (1998).